NOVEMBER/DECEMBER 2024

FAEL42/CAEL44/BAEL44 — BASIC PHYSICS - II (Allied)

Time : Three hours Maximum : 75 marks

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SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define polarization.
2. What is meant by optical activity?
3. Mention the applications of Raman effect.
4. What is a LASER?
5. Define photoelectricity.
6. State Pauli's principle.
7. Give the significance of isospin.
8. List the properties of quarks.
9. Give the postulates of special theory of relativity.
10. Write down the mass energy equation.

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Describe the working of Newton's rings experiment.

Or

(b) Illustrate the functions of half shade polarimeter.

12. (a) Describe in detail Raman effect.

Or

(b) Illustrate the working of Ruby laser.

13. (a) Elucidate Bainbridge mass spectrometer.

Or

(b) Explain the experimental verification of Einstein's equtation.

14. (a) Discuss in detail liquid drop model.

Or

(b) Write a short note on isospin and quarks.

15. (a) Derive the expression for Lorentz transformation.

Or

(b) Obtain the expression for variation of mass with velocity.

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SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Elaborate the method of Faunhofer diffraction.

17. Illustrate the working of He-Ne laser with a suitable sketch.

18. Explain in detail vector atom model.

19. Discuss in detail quantum numbers.

20. Elucidate the concept of time dilation.

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